ENGINE ELECTRICAL

4

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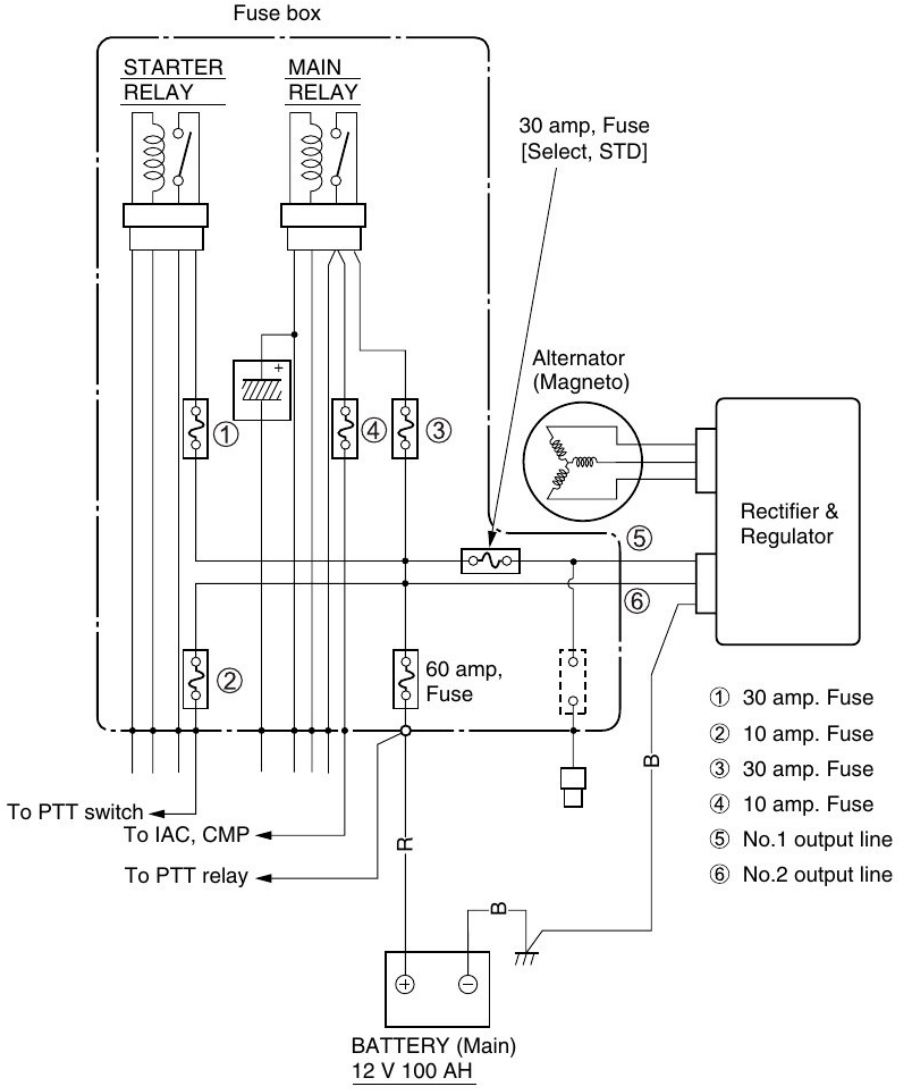
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BATTERY CHARGING SYSTEM

OUTLINE

The battery charging system circuit is illustrated below.
It is composed of the BATTERY CHARGE COIL, RECTIFIER & REGULATOR and BATTERY.
The three phase AC current generated from the battery charge coil is converted by the rectifier & regulator into regulated DC current which is used to charge the battery.

OUTPUT	**12 V 44 A (528 W)/3 000 r/min.**
REGULATED VOLTAGE	**14.2 – 15.2 V**

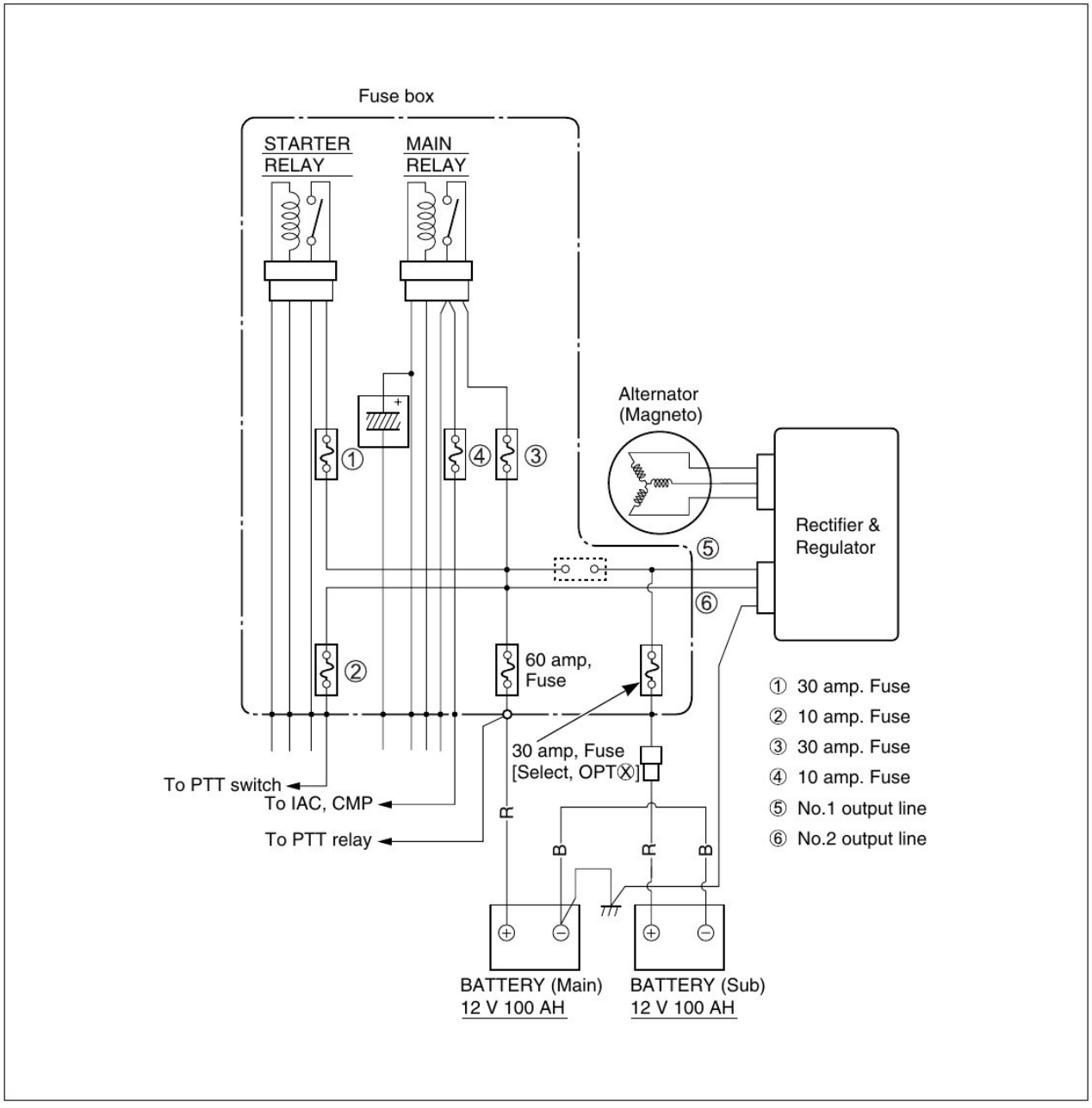


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ISOLATOR FUNCTION

The battery charging system is equipped with an isolator function.
When a sub battery is used in addition to the main battery for engine operation, this function allows both the batteries to be charged at the same time.
To modify the charging circuit and distribute the power to the individual batteries, relocate the 30 amp fuse in [STD] position to [OPT ⓧ] position in the fuse box.
Relocation of the 30 amp fuse to [OPT ⓧ] position modifies the charging circuit so the No.2 red output lead of the Rectifier & Regulator can charge the main battery for engine operation and the No.1 red output lead can charge the sub battery.

NOTE:
For proper charging circuit operation, the negative terminals of both batteries, main and sub batteries, must be connected with a cable of the same size as the existing battery cable.



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INSPECTION

BATTERY CHARGE COIL

Measure battery charge coil resistance.

09930-99320: Digital tester

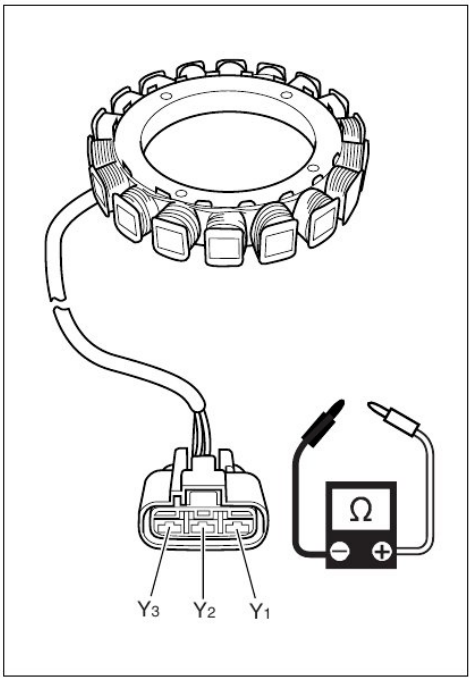
Tester range: Ω (Resistance)

1. Disconnect battery charge coil leads from rectifier & regulator.
2. Measure resistance between leads in the combinations shown.

Battery charge coil resistance:

Terminal for tester probe connection	Resistance
Yellow 1 to Yellow 2	0.14 – 0.20 Ω
Yellow 2 to Yellow 3	
Yellow 3 to Yellow 1	

If measurement exceeds specification, replace battery charge coil.



FUSE BOX/FUSE

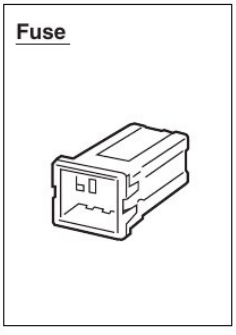
09930-99320: Digital tester

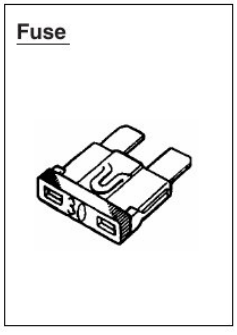
Tester range: (Continuity)

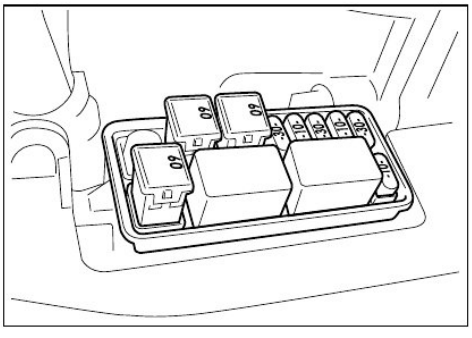
Fuse

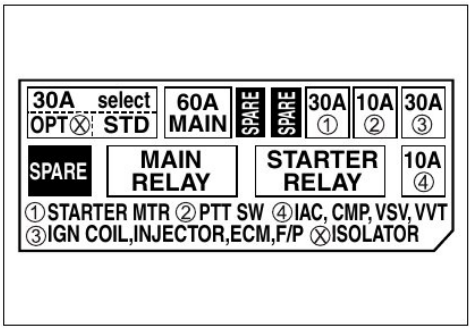
1. Remove the fuse from fuse box.
2. Inspect continuity between both terminals of fuse.
   If no continuity is indicated, replace fuse.

Main fuse: 60A
Isolator select fuse: 30 A
Starter motor relay fuse: 30A
ECM/Ign. coil/Injector/Fuel pump fuse: 30 A
PTT switch fuse: 10 A
IAC/VVT/VSV/CMP fuse: 10 A





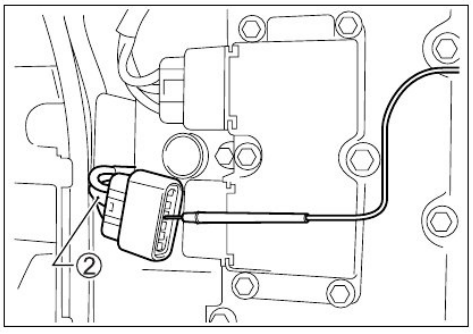




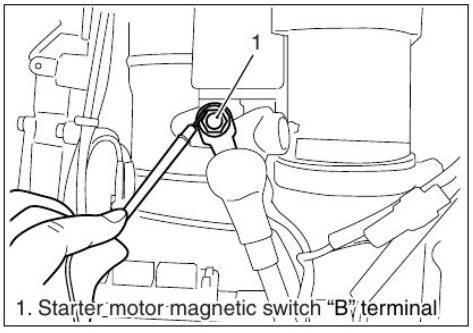
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60 amp. main fuse line

1. Disconnect battery cables from battery.
2. Disconnect output lead wire connector from rectifier & regulator.



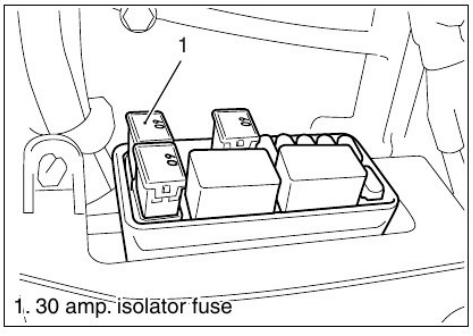
3. Inspect continuity between the red output lead wire ② of rectifier & regulator and “B” terminal of starter motor magnetic switch.
4. If no continuity is indicated, replace fuse and/or main harness.



1. Starter motor magnetic switch “B” terminal

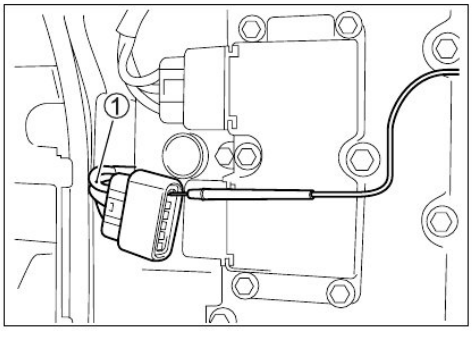
30 amp. Isolator select fuse line

1. Disconnect battery cables from battery.
2. Install 30 amp. isolator select fuse to “OPT ⓧ” position.

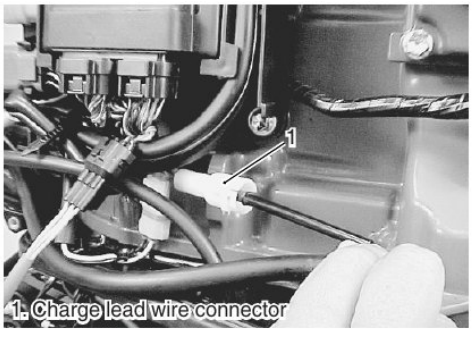


1. 30 amp. isolator fuse

3. Disconnect output lead wire connector from rectifier & regulator.



4. Inspect continuity between the red output lead wire ① of rectifier & regulator and charge lead wire connector as shown.
5. If no continuity is indicated, replace fuse and/or main harness.

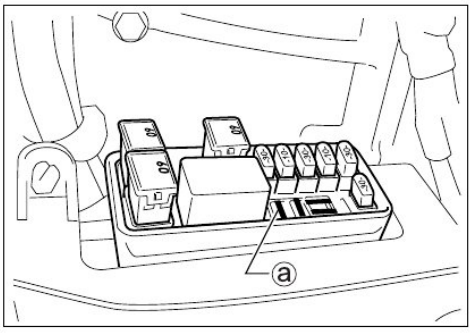


1. Charge lead wire connector

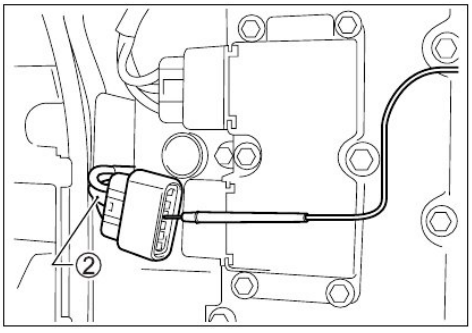
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30 amp. starter motor relay fuse line

1. Disconnect battery cables from battery.
2. Disconnect starter motor relay from fuse box.
3. Disconnect output lead wire connector from rectifier & regulator.

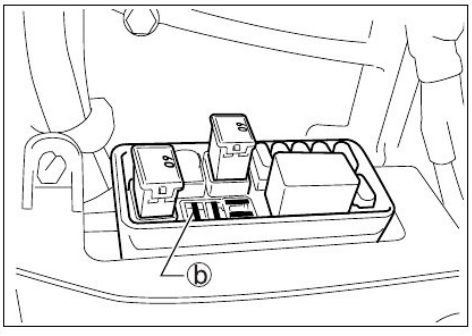


4. Inspect continuity between the lead wire terminal ⓐ of starter motor relay and the red output lead wire ② of rectifier & regulator.
5. If no continuity is indicated, replace fuse and/or main harness.

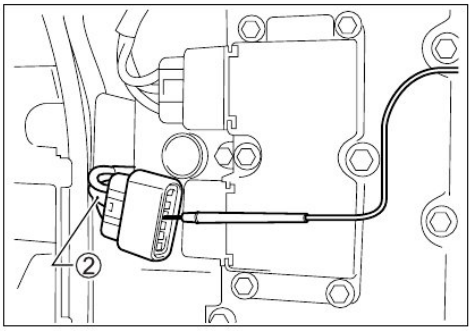


30 amp. ECM/Ign. coil etc. fuse line

1. Disconnect battery cables from battery.
2. Disconnect main relay from fuse box.
3. Disconnect output lead wire connector from rectifier & regulator.



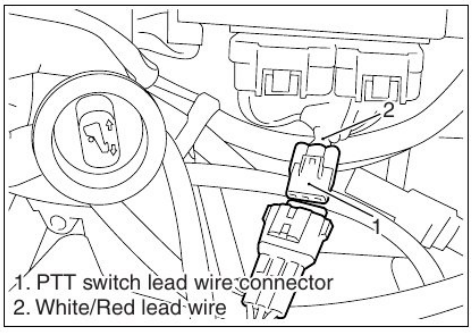
4. Inspect continuity between the lead wire terminal ⓑ of main relay and the red output lead wire ② of rectifier & regulator.
5. If no continuity is indicated, replace fuse and/or main harness.



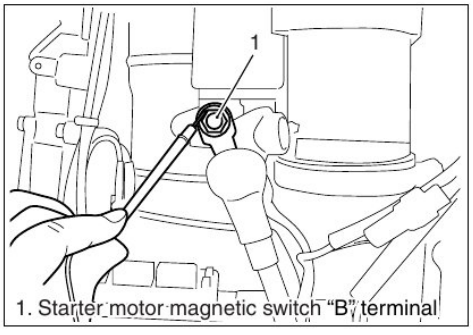
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10 amp. PTT switch fuse line

1. Disconnect battery cables from battery.
2. Disconnect PTT switch lead wire connector from switch.

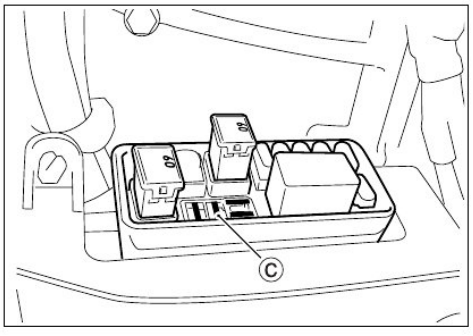


3. Inspect continuity between the White/Red lead wire of main harness and “B” terminal of starter motor magnetic switch.
4. If no continuity is indicated, replace fuse and/or main harness.

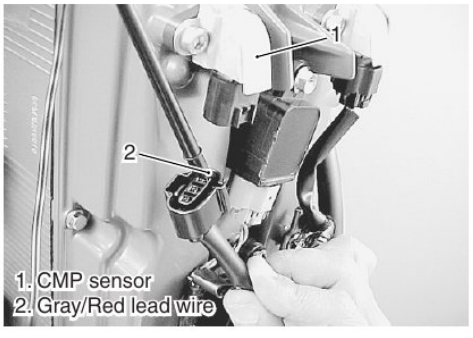


10 amp. IAC/VVT/VSV/CMP fuse line

1. Disconnect battery cables from battery.
2. Disconnect main relay from fuse box.
3. Disconnect lead wire connector from CMP sensor.



4. Inspect continuity between the Gray/Red lead wire of main harness and lead wire terminal Ⓒ of main relay.
5. If no continuity is indicated, replace fuse and/or main harness.



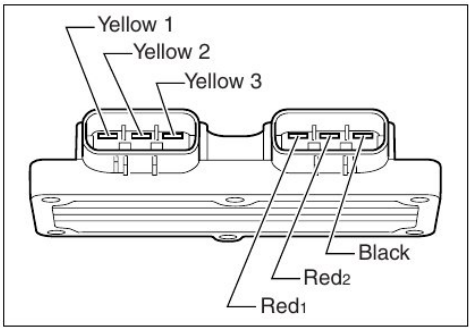
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RECTIFIER & REGULATOR

09900-25002: Pocket tester

Tester range: ×1 kΩ (Resistance)

1. Disconnect all lead wires of rectifier & regulator.
2. Measure resistance between terminals in the combinations shown.



NOTE:
The values given below are for a SUZUKI pocket tester.
As thyristors, diodes, etc. are used inside this rectifier & regulator, the resistance values will differ when an ohmmeter other than SUZUKI pocket tester is used.

Rectifier & regulator resistance:

Unit: Approx. kΩ

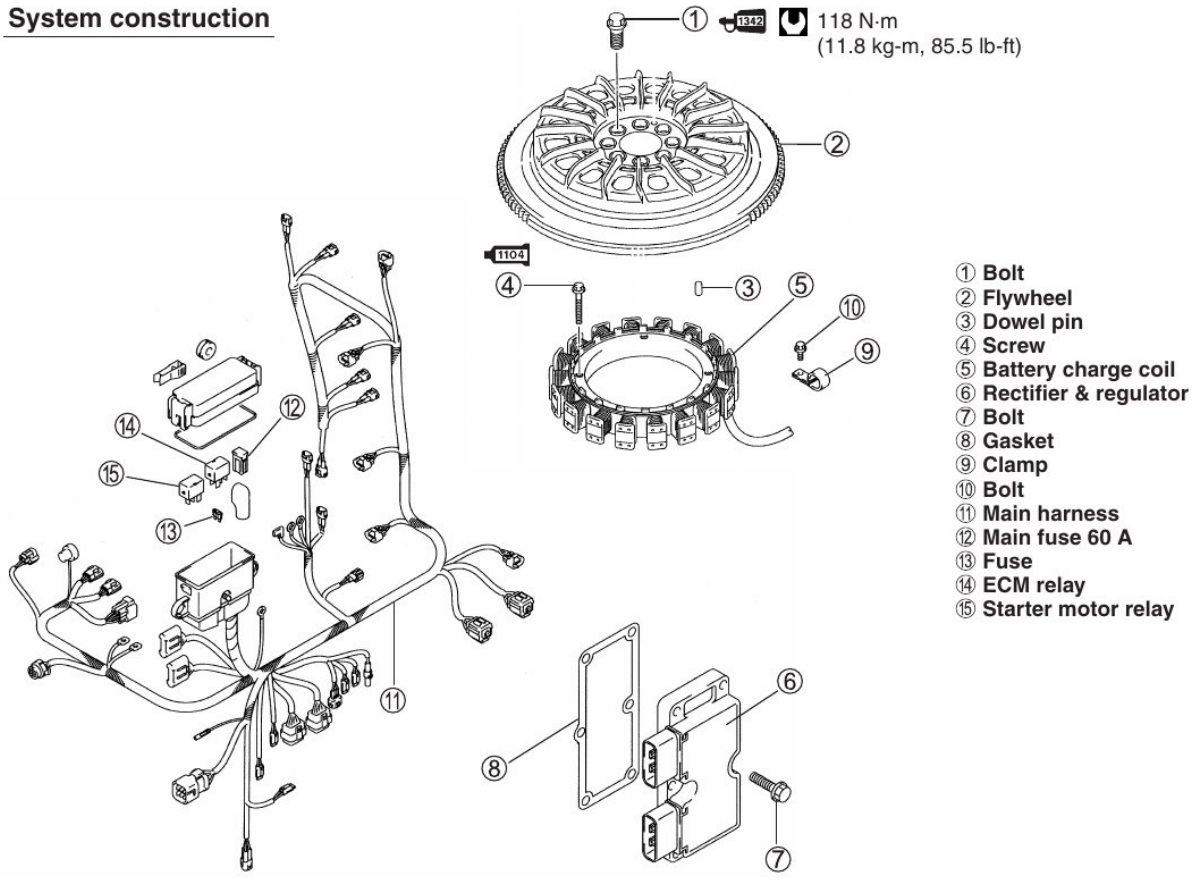
		Tester probe ⊕ (Red)					
		Black	**Red 1**	**Red 2**	**Yellow 1**	**Yellow 2**	**Yellow 3**
Tester probe ⊖ (Black)	**Black**		2 – 25	2 – 25	1 – 7	1 – 7	1 – 7
	Red 1	500 – ∞		500 – ∞	500 – ∞	500 – ∞	500 – ∞
	Red 2	500 – ∞	500 – ∞		500 – ∞	500 – ∞	500 – ∞
	Yellow 1	500 – ∞	1 – 7	1 – 7		500 – ∞	500 – ∞
	Yellow 2	500 – ∞	1 – 7	1 – 7	500 – ∞		500 – ∞
	Yellow 3	500 – ∞	1 – 7	1 – 7	500 – ∞	500 – ∞	

∞: Infinity

If measurement exceeds specification, replace rectifier & regulator.

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REMOVAL/INSTALLATION

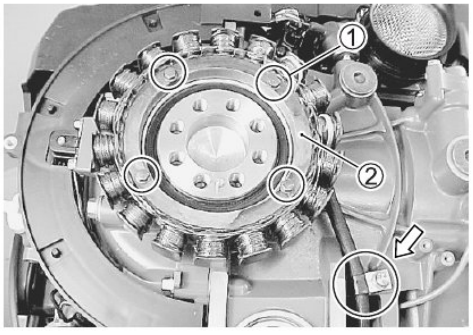


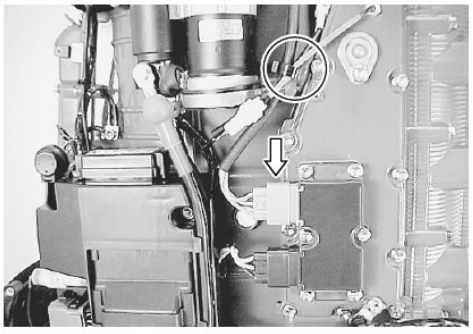
REMOVAL

Prior to removing electrical parts:
- **Disconnect battery cables from battery.**

Battery charge coil

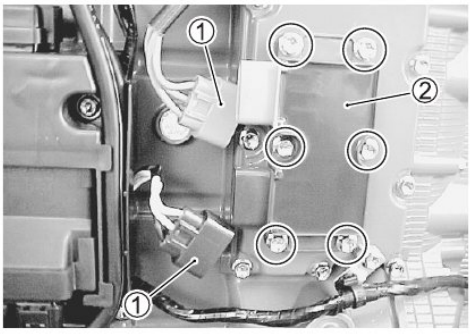
- Remove flywheel magneto. (See page 3-66.)
- Remove four (4) screws ① securing the battery charge coil ②.
- Remove the lead wire clamp and battery charge coil.
- Disconnect battery charge coil lead wire connector from Rectifier & regulator.





Rectifier & regulator

- Disconnect lead wire connectors ① from Rectifier & regulator ②.
- Remove the six (6) bolts and Rectifier & regulator.



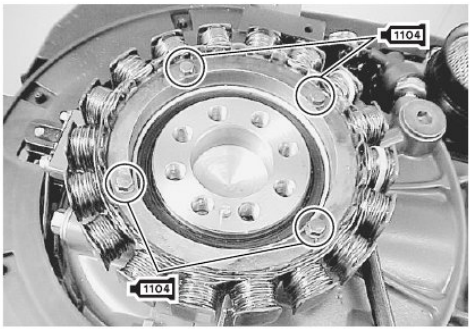
INSTALLATION

Installation is reverse order of removal with special attention to the following steps.

Battery charge coil

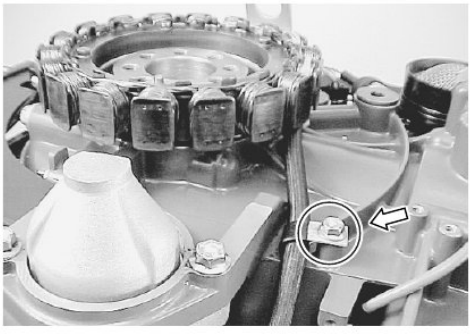
Apply Suzuki Bond No.1104 to the coil securing screws.

1104 99000-31030: SUZUKI BOND NO. 1104



Wire routing

Secure coil lead wire with lead wire clamps, then check that coil lead wire is routed properly and away from hot or rotating parts. (For wire routing – See page 11-4 to 11-10.)

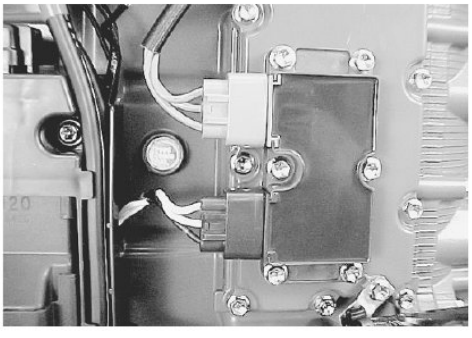


Rectifier & regulator

Install gasket and rectifier & regulator, then tighten bolts securely.

CAUTION

Do not reuse gasket, always replace with new one.



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